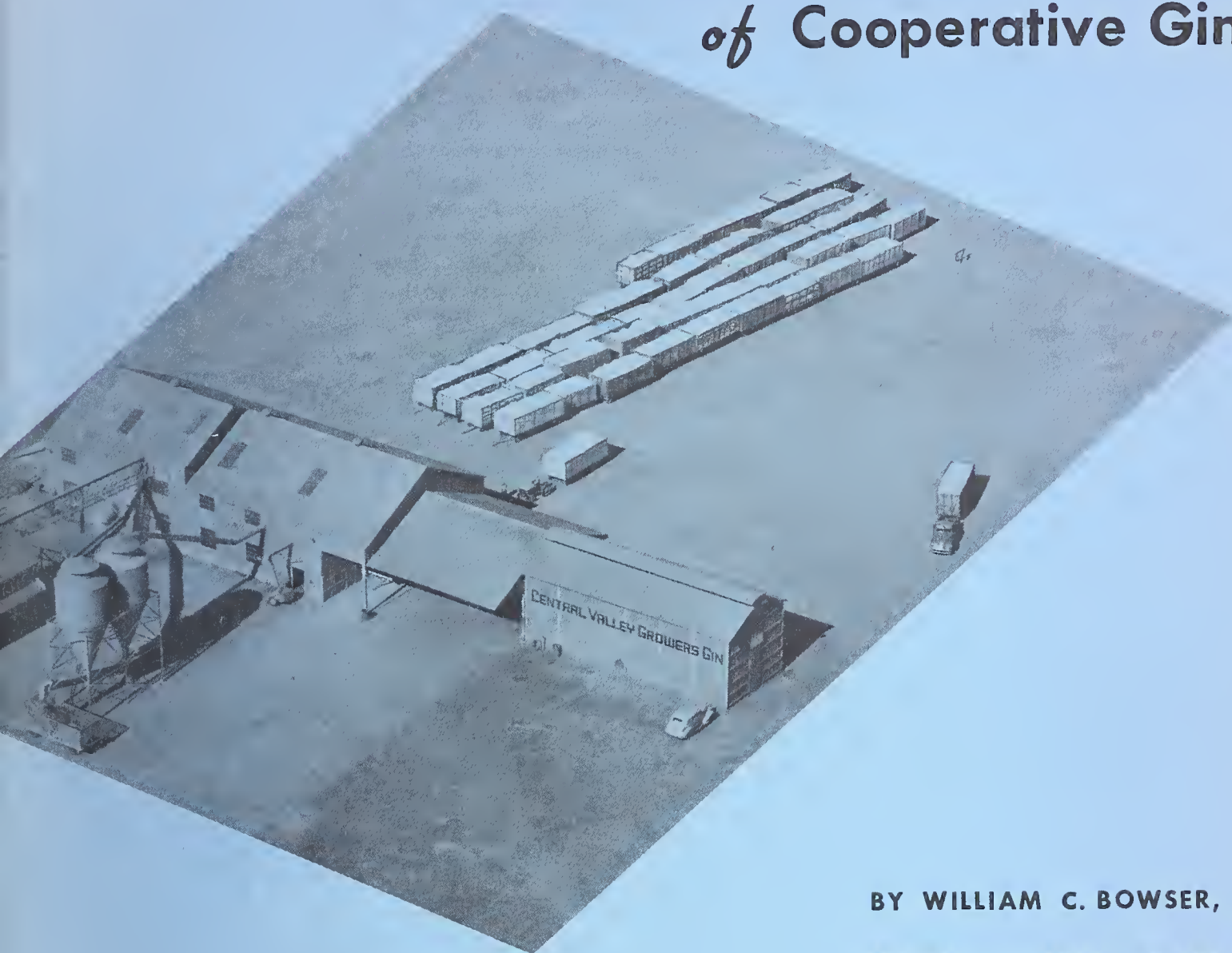


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Effect of Grades and Weights **on Cottonseed Margins** *of Cooperative Gins*



BY WILLIAM C. BOWSER, JR.

FARMER COOPERATIVE SERVICE
U. S. DEPARTMENT OF AGRICULTURE

FARMER COOPERATIVE SERVICE
U. S. DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

Joseph G. Knapp, Administrator

The Farmer Cooperative Service conducts research studies and service activities of assistance to farmers in connection with cooperatives engaged in marketing farm products, purchasing farm supplies, and supplying business services. The work of the Service relates to problems of management, organization, policies, merchandising, product quality, costs, efficiency, financing, and membership.

The Service publishes the results of such studies, confers and advises with officials of farmer cooperatives; and works with educational agencies, cooperatives, and others in the dissemination of information relating to cooperative principles and practices.

This study was conducted under authority of the Agricultural Marketing Act of 1946 (RMA, Title II).

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Summary

Grading cottonseed at oil mills generally results in ginners receiving more equitable prices on seed and larger margins. Gains or losses in gin purchase weights of cottonseed as compared with sale weights also directly affect the ginner's margin, as well as dollar returns to individual growers.

These findings, in general, have been recognized by the ginning and crushing industry, if not by the cotton farmer. Very little information, however, has been available regarding the extent of their importance.

This study was made to supply such information as well as to better determine actual gin margins on seed.

Ginners commonly determine the price they pay farmers for cottonseed by deducting a given amount per ton from prevailing prices for seed at nearby oil mills. The spread between these prices is usually considered sufficient to cover costs and allow a reasonable profit.

According to gin managers contacted in this study, the usual difference between gin and mill prices in 1955-56 was about \$5 in Texas, Oklahoma, and Alabama and between \$3 and \$4 in Arkansas. However, data obtained from official operating records of some 200 cooperative gins in these areas indicated the following average gin margin on cottonseed for the 1955-56 season: Texas, Lubbock area - \$8.36 a ton; Texas, Hamlin area - \$6.20; Texas, Lower Rio Grande Valley area - \$7.03; Oklahoma - \$7.84; Alabama - \$8.46; and Arkansas - \$4.62 a ton.

The difference between the actual margins on seed, as determined by this study, and the apparent margins indicated by the spread between gin and mill prices was due almost entirely to premiums received on graded seed and/or gains and losses in purchase weights of seed over mill delivery weights. Large premiums received on seed more than offset an average loss in seed weight registered by gins in 3 of the 6 areas studied.

Fluctuations between gin margins were of greater significance than area margins. Of the 222 gins in the study group, 65 had margins on cottonseed of less than \$6 a ton, 117 had margins from \$6 to \$9, and 40 gins had margins of \$9 or more a ton. Gin margins differed in similar degree even within the same areas.

Ginners buy cottonseed from the farmer "as is" or ungraded, while about two-thirds of all gin deliveries to oil mills in the United States are sold on official grades. In recent years, the average grade of cottonseed in the United States has been generally above 100. Grades received by study gins for 1955 crop cottonseed, when weighted by volume, ranged from an average of 102 for Hamlin to 104 for Alabama, reflecting premiums of \$1.12 and \$2.25 a ton, respectively.

Gains and losses on gin purchase weights of cottonseed are at least as important in their effect on the ginner's margin as grades, and sometimes more so, as they affect non-graded seed as

well as seed sold on grade. A major factor in this regard is that less than half the seed purchases from farmers are actually weighed by scales. More than half is bought on estimated weights. A small loss in seed weight may be attributed to handling, transportation and loss in moisture. However, errors in estimating purchase weights and discrepancies in scale weighing of cottonseed can result in considerable fluctuations in the margin a ginner receives on each lot of seed he sells, as well as his total margin on seed for the season.

In the 1955-56 season, sales of cottonseed per gin in the Lower Rio Grande Valley area averaged 82 tons above purchases, a gain of 85 pounds per ton of purchase weight. The net effect was to increase the margin on seed from \$5.09 a ton to \$7.03, or nearly 40 percent. On the other hand, gins in the Hamlin area lost 31 pounds per ton, or about 77 cents on each ton handled.

Scale weighing in itself does not necessarily insure correct gin weights

but it is a big step in the right direction. The sum of margin adjustments, both plus and minus, resulting from gains and losses in purchases averaged \$1.19 a ton for the 171 gins in the study group using scales as compared to \$2 for those gins estimating seed weights. An adequate system of inspection is needed to maintain some control over the accuracy of the scales as well as their use.

Cottonseed margin account for a substantial portion of the ginner's total operating margin. A better understanding of the effect of grades and weights on his margin on seed would help the ginner improve his marketing efficiency and reduce his operating costs. On the other hand, cottonseed sales make up a sizable share of the cotton farmer's total receipts -- paying his ginning costs and often furnishing him needed cash. Also, cotton gins are practically the only market available to most farmers for cottonseed and margins realized by ginner are reflected back to the grower in the price he receives for his seed.

Effect of Grades and Weights on Cottonseed Margins of Cooperative Gins

By William C. Bowser, Jr.

*Cotton and Oilseeds Branch
Marketing Division*

Cotton is faced with growing competition from synthetic fibers and an expanding foreign production. The ginner, who plays a major role in the processing of seed cotton, must continually improve his marketing efficiency and reduce his net operating costs. Knowing his overall margin, and the components which make it up, will help him stay in business. Cottonseed accounts for 10 to 15 percent of the cotton farmer's total receipts, and it is important that he, too, becomes more fully aware of the factors that help to determine the ginner's margin.

The main purpose of this study was to obtain specific information regarding premiums and discounts on graded seed and gains and losses on purchase weights to determine more accurately the total margin realized by ginner on cottonseed. While these factors have been generally recognized by the ginning and crushing industry, there has been little information available as to the degree of their importance.

Grades and weights on cottonseed are often responsible for wide fluctuations between margins of gins, even within the same area. The importance

of each varies between regions as well as from year to year. However, gains and losses in purchase weights affect nearly all seed in varying degree, graded or not. In addition, the significance of both grades and weights is seldom fully recognized by the farmer.

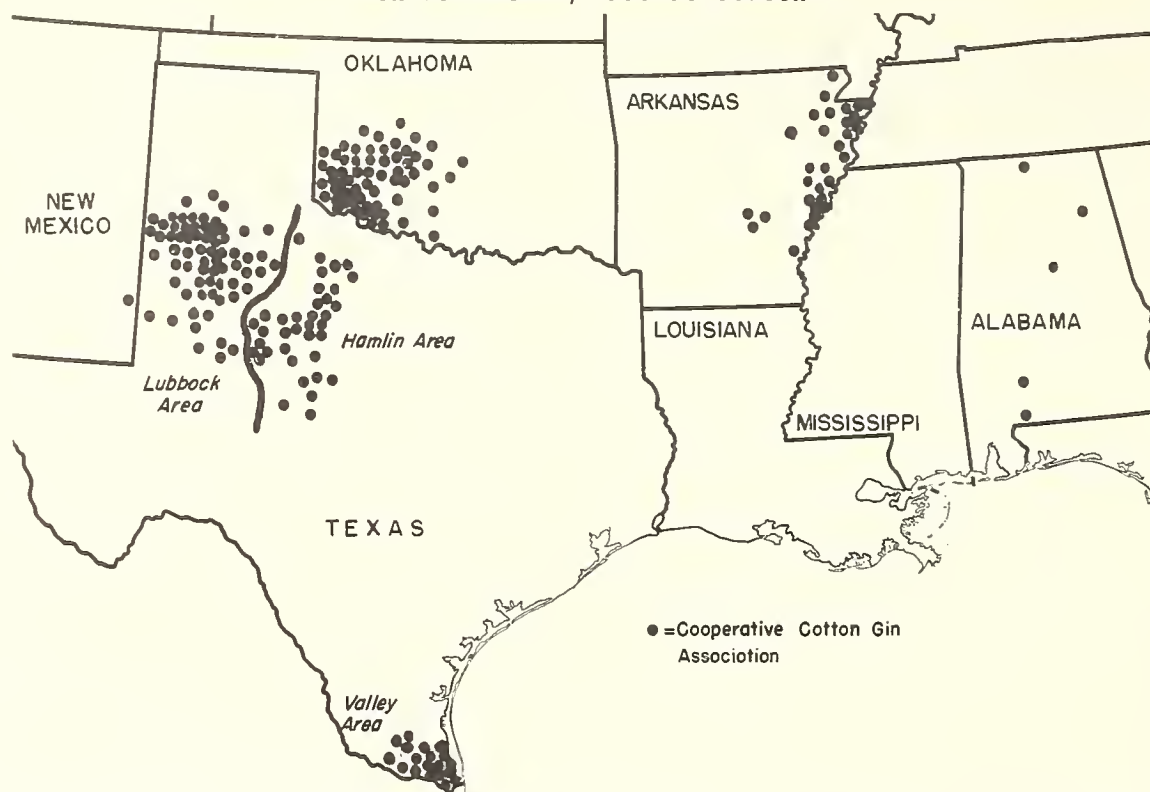
Schedules were obtained from official 1955-56 operating records of 222 cooperative gins in six selected cotton growing areas of the United States (figure 1). Three of the areas surveyed were in Texas - Lubbock with 69 gins (including one New Mexico gin), Hamlin with 37, and the Lower Rio Grande Valley with 20 gins. The other areas were Oklahoma with 61 gins, Arkansas with 30, and Alabama with 5 gins. Information most important to the study included (1) prices per ton paid or advanced farmers for cottonseed by each gin at time of ginning, pounds of cottonseed bought, and total dollars paid for cottonseed while each price was in effect; and (2) complete data regarding cottonseed sales of each gin by separate outturns or shipments, data of each sale, buyer, tonnage (mill weights), grade of seed, basis 100 grade price, grade premium or discount received, final price received per ton, and total sales amount of each transaction.

The cotton crop of 1955 was well adapted to a study of this nature. Support programs on cottonseed did not materially influence prices at gins or

Note: The term "gin" as used in this report represents one association. Some of the gins, or associations, included in the study had two or more gin plants or batteries.

Figure 1

Location of Cotton Gins, and Areas Selected for the Study of Gin Margins on Cottonseed, 1955-56 Season



oil mills as in earlier years. Also, a support loan available to farmers was not effective as prices paid by gins were above the support level during most of the ginning season. Competitive prices were generally free to influence prices and margins.

Within a given area, ginning and cottonseed marketing prices tend to be similar, whether the gins are cooperative or commercial operations. For this reason, the results of the study can be considered representative of the great majority of all gins in the study areas.

Grades, Weights and Margins

Grades on seed and gains and losses on purchase weights are not the only factors which influence the ginner's margin but they are important ones. A better understanding of grades and weights and the manner in which they affect the marketing of cottonseed will benefit both the ginner and grower. Ginning is becoming increasingly competitive and such information can be the difference between success and failure.

Also, cotton gins are the only markets available to most farmers for cottonseed and the ginner's margin is reflected back to the grower in the price he is paid for seed.

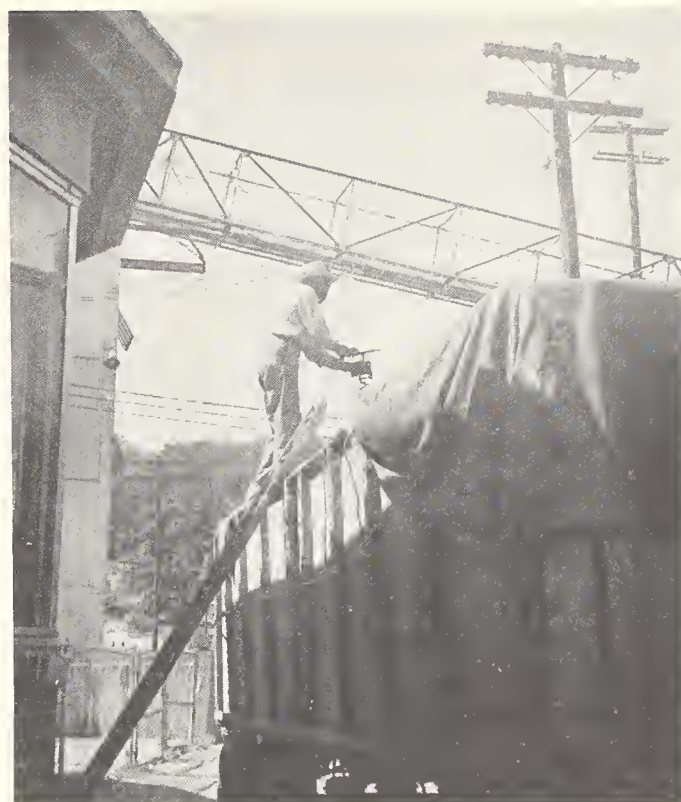
Grades

Grading cotton seed at oil mills generally results in more equitable prices for seed and larger margins to gins.

This may be doubly true in the case of member gins of cooperative mills where patronage refunds are involved. Farmer members of cooperative gins also share in the premiums and discounts received by gins on seed. However, gins do not grade cottonseed purchased from growers because of the relatively high cost and time required for analysis of small lots.

Cottonseed is bought from the farmer "as is," or ungraded. However, about two-thirds of all gin deliveries to oil mills is sold on official grades, according to latest estimates of the Agricultural Marketing Service, U. S. Department of Agriculture. It was generally thought, at one time, that cottonseed varied little in quality and quantity of end products. Experience and research soon proved otherwise.

In 1937, at the request of the cottonseed industry, the U. S. Department of Agriculture undertook the supervision of sampling, analyzing and grading of



Cottonseed is carefully weighed and sampled for grade on receipt at oil mills.

Table 1. - Cottonseed: Production, deliveries to oil mills, and average grades, by States and United States, 1954 - 1957

State	Production of cottonseed				Deliveries to oil mills				Average grade ¹			
	1954	1955	1956	1957	1954	1955	1956	1957	1954	1955	1956	1957
	1,000 tons				Grade							
Alabama	297	413	300	215	270	380	280	200	101.5	103.5	103.5	87.0
Arkansas	565	678	581	418	495	625	530	380	100.5	102.5	102.5	97.5
Louisiana	236	233	238	148	220	225	225	140	99.0	98.0	101.0	85.5
Mississippi	654	821	656	460	580	750	605	405	101.0	102.0	101.5	85.0
Missouri	197	174	189	78	180	160	175	70	98.5	101.5	103.5	99.0
Oklahoma	122	188	108	114	105	165	95	105	100.5	101.0	101.5	101.0
Tennessee	223	250	211	176	205	235	195	165	102.5	102.0	104.5	96.0
Texas	1,647	1,687	1,497	1,550	1,520	1,540	1,360	1,450	102.5	102.0	106.5	99.0
Other States ²	1,768	1,594	1,627	1,450	1,654	1,476	1,550	1,371	-	-	-	-
Total	5,709	6,038	5,407	4,609	5,229	5,556	5,015	4,286	101.5	102.0	103.0	96.5

¹Unweighted.

²Includes Arizona, California, Florida, Georgia, Illinois, Kentucky, New Mexico, North Carolina, South Carolina, and Virginia.

Source - Cotton Division, Agricultural Marketing Service, U. S. Department of Agriculture.

cottonseed.¹ At the present time six factors form the basis for determining grade, namely oil, ammonia or protein (cake and meal), linters content, moisture content, free fatty acids (indicator of oil quality), and foreign matter (trash).

The first three are combined to form an index for quantity and the last three an index for quality. The grade of cottonseed, rounded to the nearest whole or half number, is calculated by multiplying the quantity index by the quality index and dividing by 100. Grades on cottonseed have varied considerably since World War II with the average for the United States ranging from 93.5 in 1945 to 103.0 in 1956.² As can be seen in table 1, grades on cottonseed also can vary sharply between areas, and for any particular area from year to year.

Weights

Gains and losses in the purchase weights of cottonseed are often as important to the ginner's margin, and to the price paid growers, as grades. In those areas where grading is not practiced, seed weights become even more significant. Less than half of the seed purchased by gins is actually weighed.³ This is an unusual feature of the industry. The balance is purchased under a system of estimating weights. Formulas for estimating weights vary widely, although most tend to fall under 3 or 4 major types.

A preceding study published in 1957 indicates the discrepancies, as well as the inequities, to both ginner and grower

resulting from the practice of estimating seed weights.⁴ Gains or losses in purchase weights of cooperative gins for a season will be reflected in the amount of total net savings available for distribution to patrons. In addition, inaccurate purchase weights are bound to result in inequities to individual growers, as some will receive more than is rightfully theirs, while others will lose substantial returns on their seed.

Some loss between buying and selling weights can be attributed to handling, transportation and seed shrinkage. According to an Alabama study,⁵ 98 of 124 gins surveyed in 1950 and 1951 reported losses in weight. The above factors, as well as estimating purchase weights, were listed by gin managers as reasons for losses in weights. Conclusions reached by that report, however, indicated that the first three factors were relatively unimportant, compared to the method of estimating purchase weights. The study also indicated that per ton costs of losses in weight of seed of gins using seed scales was \$2.80 less than the average of gins using estimating formulas.

An earlier study on cottonseed marketing also pointed out the need for a more adequate system for determining gin purchase weights.⁶ For the 1947-48 season, ginner in the western and southwestern regions of the Cotton Belt reported average gains of 7 and 12 pounds a ton, respectively, between purchase and sale weights. Average losses of 6 pounds a ton were reported by gins in the south central region and losses

¹Whitten, M. E. The Grading of Cottonseed, U. S. Dept. of Agr. Inf. Bul. No. 39. p. 5. May 1951.

²Agricultural Marketing Service. Cottonseed quality, Crops of 1955-56. Cotton Div., U. S. Dept. of Agr., Memphis, Tenn. pp. 1-2. Dec. 1957.

³Fortenberry, A. J. Charges for Ginning Cotton. Agricultural Marketing Service, U. S. Dept. of Agr. Mar. Res. Rpt. 120. pp. 35-37. June 1956.

⁴Campbell, John D. Estimating the Weight of Cottonseed by Gins. Farmer Cooperative Service. U. S. Dept. of Agr. Serv. Rpt. 29. June 1957.

⁵Anderson, F. B. Factors Affecting Handling Costs of Cottonseed at Gins in Alabama. Ala. Polytechnic Inst. Agr. Expt. Sta. Bul. No. 292. pp. 11-14. Aug. 1954.

⁶Whitten, M. E., and Stevenson, J. H. The Marketing of Cottonseed, U. S. Dept. of Agr. pp. 16-20. Nov. 1949.



While care is taken to accurately record the weight of cotton bales, methods of determining purchase weights of cottonseed often contrast sharply with modern marketing practices.

of 37 pounds a ton were reported in the southeastern region.

Scale weighing in itself does not necessarily insure correct gin weights under present conditions, but it does tend to reduce the chance of error. The use of scales to determine seed purchase weights along with an effective control system to regulate their use are probably the main essentials to a more satisfactory degree of accuracy.

Determining Margins

The term "apparent margin," as used in this report, is the difference between the weighted average purchase price on cottonseed for the season and the weighted average price on seed sold to oil mills, basis 100 grade, f.o.b. gins. The "actual or total margin" on cottonseed is the sum of the apparent margin, the premium or discount received on graded seed, and the adjustment for weight gain or loss. The adjustment for weight gain or loss represents an "ad-

justment" to the purchase price for seed (gin weights) and increases or decreases the ginner's margin according to weight gains or losses reflected by mill delivery weights.

To illustrate, a ginner estimates his seed purchases for the season at 1,950 tons. He pays an average price to farmers of \$45 a ton, or \$5 below the average price of \$50 a ton for basis 100 grade seed at the mill. His apparent margin is \$5 a ton. But grades on seed averaged 103 so his actual selling price was \$51.50 a ton ($1.03 \times \$50$), increasing his margin at this point to \$6.50.

In addition, his sales volume totaled 2,000 tons (mill weights) indicating he underestimated purchases by 50 tons. This, in effect, adjusts his purchase price of \$45 a ton, gin weights, to \$43.88 a ton, mill weights (cost of sales, $\$45 \times 1,950 \text{ tons} = \$87,750 \div 2,000 \text{ tons}$) and increases his apparent margin an additional \$1.12 a ton.

Under these hypothetical but not unusual circumstances, the ginner's

actual or total margin on cottonseed for the season was \$7.62 a ton, or more than 50 percent larger than his "apparent" margin of \$5. On the other hand, the same ginner might have lost 50 tons on gin weights by estimating seed, or using improperly balanced scales. Under this assumption and following the same line of reasoning, the ginner's total margin per ton for the season would have been \$5.37.

Seed prices and gin margins on

cottonseed can change sharply from year to year. When grades are high, as in the 1955-56 season, gin margins probably tend to be larger than in years of poorer quality seed. In the 1947-48 and 1948-49 seasons, however, grades on seed for the United States averaged 98.0 and 98.5, respectively, while the spread between the farm price and the mill price for seed was \$15.40 and \$8.60 a ton for the same periods.⁷

Comparisons Between Areas

A general practice of ginner to arrive at prices paid farmers for cottonseed is to deduct a certain amount from prevailing prices for seed at nearby oil mills. The spread between these prices, usually considered large enough to allow a reasonable profit over costs, is commonly accepted as the ginner's margin on seed.

The prevailing spreads between gin and mill prices in 1955-56 according to gin managers contacted were about \$5 in Texas, Oklahoma and Alabama and around \$3 to \$4 in Arkansas. Operating records of some 200 cooperative gins in these areas, however, disclosed the following average gin margins on cottonseed for the 1955-56 season: Texas, Lubbock area - \$8.36 a ton; Texas, Hamlin area - \$6.20; Texas, Lower Rio Grande Valley area - \$7.03; Oklahoma - \$7.84; Alabama - \$8.46; and Arkansas - \$4.62 a ton.

The difference between actual gin margins on seed, as determined by this study, and margins indicated by the spread between gin and mill prices was due almost entirely to premiums received on graded seed and/or gains and losses in gin purchase weights against mill delivery weights.

As can be seen in table 2, all of the five areas in which seed was sold to

mills on grade averaged substantial premiums on seed. Margins on seed in Lubbock and the Valley areas in Texas, and in Oklahoma included a sizable plus adjustment due to gains in seed weights. The remaining three areas averaged a loss in seed weights and margins were reduced accordingly.

In most areas of the United States, 75 to 90 percent of the cotton production is ginned in about 8 to 12 weeks. Cottonseed is seldom held at the gins during this period, being marketed about as fast as it is accumulated. It is during this period of heavy delivery of cottonseed to oil mills that the grade of seed is usually highest. Thus, in any particular area, grade certificates could average below 100 for the season. When weighted by volume, however, the average grade of cottonseed handled could be 100 or above.

This is substantiated, in part, by weekly price data for the 1955-56 season (see figures 2, 3, 5, and 6). Mill prices for graded seed were most prominently above mill quotations for 100 basis seed during the 8 to 12 weeks of heavy seed sales to oil mills.

⁷Whitten, M. E., and Stevenson, J. H. The Marketing of Cottonseed, U.S. Dept. of Agr. pp. 54-57. Nov. 1949.

Table 2. - Average of gin margins on cottonseed in dollars per ton, and components, by specified areas, 1955-56 season

Gin margins	Texas, Lubbock	Texas, Hamlin	Texas, Valley	Oklahoma	Arkansas	Alabama
<i>Per ton</i>						
Indicated margin ¹	\$5.00	\$5.00	\$5.00	\$5.00 to 4.00	\$3.00	\$5.00
Apparent margin ²	5.21	5.85	5.09	5.30	7.57	7.57
Premium on grade	1.87	1.12	(3)	2.07	1.23	⁴ 1.35
Adjustment for weight gain or (loss)	1.28	(0.77)	1.94	0.47	(0.18)	(0.46)
Actual or total margin	8.36	6.20	7.03	7.84	4.62	8.46

¹The amount most commonly indicated by ginner as the usual difference between the price per ton paid farmers for cottonseed, and the price received by the gin from oil mills.

²The difference between the weighted average purchase price on cottonseed for the season and the weighted average price on seed sold to oil mills, basis 100 grade, f.o.b. gins.

³Seed sold by Valley gins was not graded.

⁴Average for 5 gins. Actually only 3 gins sold seed on grade, with an average premium of \$2.25 per ton.

Gins in the Oklahoma area, for example, had an average spread in gin to mill prices for the season of \$7.82 a ton, of which \$1.79 was premium. Premiums on seed averaged \$2.60 a ton, however, during the 12-week period beginning the second week in October. In the Lubbock area, premiums averaged 37 cents a ton for the season and \$1.87 a ton during peak deliveries. While the average spread in prices of gins surveyed in the Hamlin area was less during the period of heavy sales than for the total season's operations, the premium on seed was about 20 cents a ton higher.

Premiums received by gins for 1955 crop cottonseed, when weighted by volume, generally differed considerably from that indicated by simple averages of basis and final mill prices, f.o.b. gin. Average grades, weighted, ranged from 102 for Hamlin to 104 for Alabama, reflecting premiums of \$1.12 and \$2.25 a ton, respectively.

Gains and losses on gin purchase weights of cottonseed are at least as important and sometimes more so than the effect of premiums or discounts on

gin margins, as it affects non-graded seed as well as seed sold on grade.

When considering only the difference between the sale price of seed and the purchase price, a ginner's margin for the season may appear about average for the area. A substantial gain in weight over the total purchase volume for any reason, however, will sharply increase the margin per ton on total sales. Conversely, the margin on seed will be reduced should a sizable loss in total weight occur. This is equally true of gains or losses on individual purchases of seed.

The largest gain in seed weights was in the Valley area where sales per gin averaged 82 tons above purchases for the 1955-56 season, a gain of 85 pounds per ton of purchase weight. The net effect was to widen the margin on seed from \$5.09 a ton to \$7.03, or in bale terms, from \$2.20 to \$3.04, an increase of nearly 40 percent. Gins in the Lubbock area averaged a gain of 68 pounds per purchase ton while Oklahoma gins gained 22 pounds per ton. On the other hand, gins lost 31 pounds per ton in the Hamlin area, or about 77 cents on each ton of

sales. Alabama and Arkansas gins lost 23 pounds and 6 pounds per ton, respectively.

Large premiums on seed plus a substantial adjustment for gain in purchase weight caused the Lubbock area to have an actual or total margin per gin of \$8.36 as compared to an apparent margin of \$5.21 a ton, an increase of 60 percent. Gins in the Hamlin area also had good grades on seed but margins averaged only \$6.20 a ton as losses in weights partly offset premiums received. The average total gin margin for the 6 areas was \$7.08 a ton.

Differences between individual gin margins within a given area were much greater, and of more significance than between area averages. Within the same

area, gin margins in 1955-56 differed by more than \$10 a ton. Of the 222 gins in the study group 65 gins had margins on cottonseed of less than \$6 a ton, 117 or 53 percent had margins from \$6 to \$9, and 40 gins had margins of \$9 or more (appendix table 1).

Margin adjustments, both plus and minus, resulting from weight gains and losses during the 1955-56 season averaged \$1.19 a ton for the 171 gins in the study group using scales, compared to \$2 for those gins estimating weights. In pounds per ton of purchases, gains and losses averaged 23 pounds gain for gins using scales against 47 pounds for those gins without scales. The average for all gins was 28 pounds gain per ton of purchase weight.

Practices and Margins Within Areas

Grades on cottonseed, methods of determining purchase weights, and cottonseed marketing practices in general tend to be fairly uniform within certain areas but differ widely from one part of the cotton belt to another. For this reason, and because of the particular relationship of grades and weights to the ginners margin on seed, information in this report is believed most useful in terms of individual areas. Therefore, results of this study are brought out in greater detail in this section by areas, rather than as a comparative analysis between areas.

Gin prices, mill quotations for basis 100 grade seed and final mill prices for graded seed, by weeks, are shown for each area, except Alabama, in figures 2 through 6. Price premiums and discounts on seed, reflecting grades above and below 100, respectively, are indicated by the difference between mill prices for graded seed and prevailing quotations for basis 100 grade seed.

Frequency data mentioned in the following statements are found in appendix tables 1 through 8, generally in the order of referral. These tables show the frequency or number of gins in each area having values that fall within selected classes or ranges. Area averages for the 1955-56 season are also given. It was considered important to accompany the averages with some measure of variation or dispersion to show the extent by which data for individual gins varied from the average. In this case, the standard deviation, or the amount by which approximately two-thirds of the items in a normal distribution will not differ from the average, was used.

Texas, Lubbock

Gin margins on cottonseed in the Lubbock area averaged \$8.36 a ton, an increase of 60 percent over the apparent margin of \$5.21. Grades on seed aver-

aged 103.5 for the area, reflecting an average premium of \$1.87 a ton. The balance of the increase, or \$1.28, resulted from an average gain over purchase weights of 68 pounds a ton.

* * * *

Lubbock is the largest of the six study areas in number of gins and seed volume in the total sample. The 69 cooperative gins in this group are distributed fairly well throughout the High Plains, which is one of the major short-staple cotton growing sectors of the Cotton Belt. About half the 1955 cotton crop was harvested by machine stripped and most of the remainder was hand snapped.

Ginning usually begins in September and sometimes continues through most of January. Occasionally, ginning may extend considerably longer, depending on growing and harvesting conditions. From 70 to 90 percent of total ginning, however, is done during an 8 to 10 week period beginning around the middle of

October. The 1955-56 season followed this pattern fairly closely.

Gins in the Lubbock group handled some 423,000 bales, or an average of about 6,100 bales per gin. Cottonseed purchases for all gins totaled 156,400 tons against sales of 160,400 tons, an average gain over purchase weights of around 58 tons per gin. All of the gins in this area except two used seed scales.

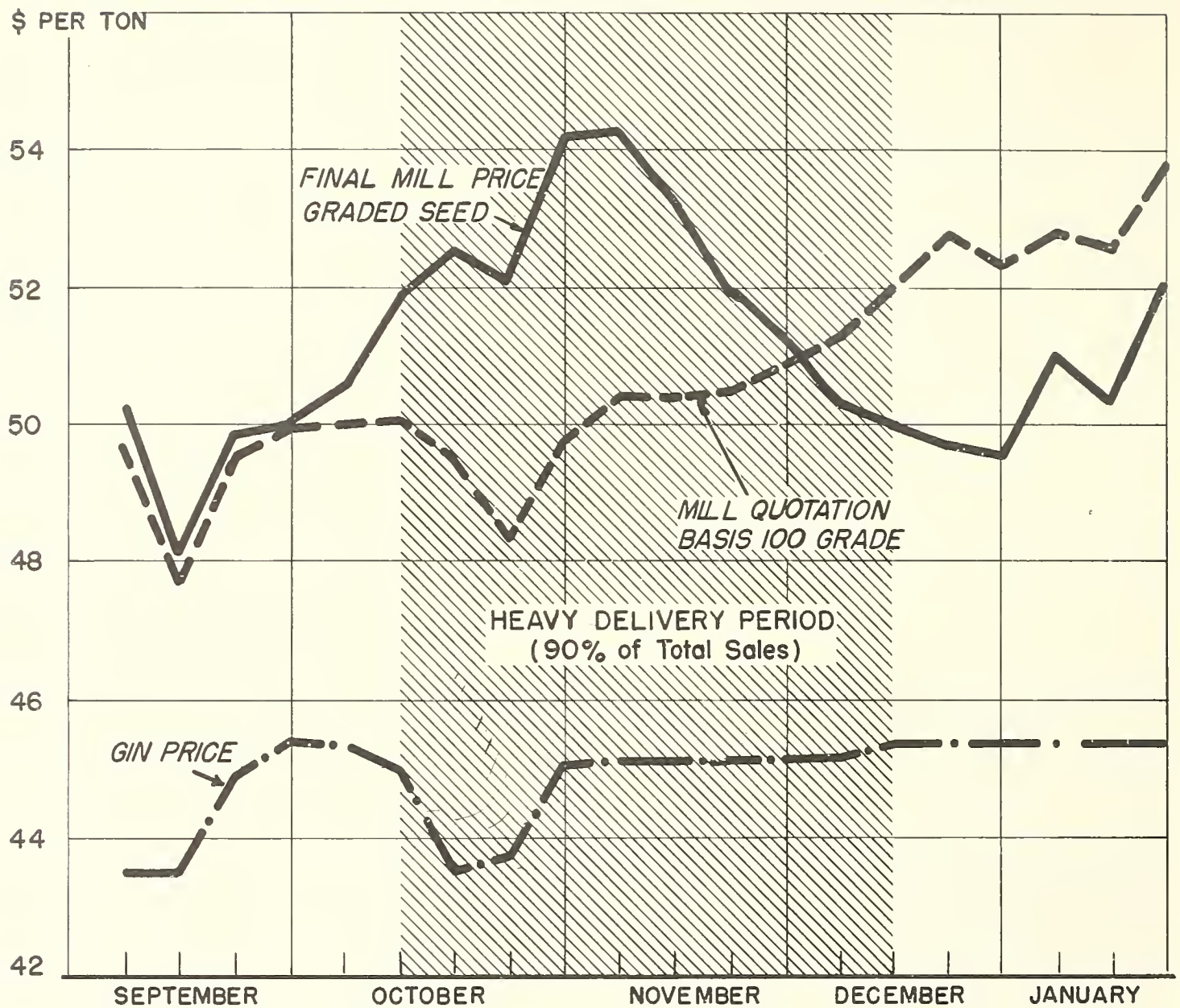
Gin prices for cottonseed fluctuated between \$43 and \$44 a ton at the beginning of the season and around the end of October, but most of the time ginners were paying \$45 (figure 2). The unweighted average of weekly gin prices to growers for a period of 21 weeks, beginning September 11, 1955, was \$44.88. Mill prices for basis grade seed, f.o.b. gin, for the same period averaged \$50.84, indicating a spread of \$5.96 for the area. When mill prices for basis 100 seed were weighted by the volume of transactions at each price,



From 1,700 to 2,500 pounds of machine stripped cotton are required to produce a 500 pound gross weight bale and 600 to 1,000 pounds of cottonseed.

Figure 2

Texas, Lubbock Area: Spread in Prices of Cottonseed Between Gins and Oil Mills, by Weeks, 1955-56 Season



however, the average margin between the gin and basis mill price was \$5.21. This is not too far off the \$5 spread indicated by most ginner's as the usual difference between the price per ton paid farmers and price received by the gin from oil mills.

While a ginner's total margin may be close to the margin indicated above, more than likely his margin on seed will be substantially higher. The bulk of the cotton is usually ginned in a relatively short period. Since seed grades generally are higher at this time than the weighted average for the whole season, the margin on seed often runs higher than may be apparent.

In 1955-56 the premiums on cottonseed for the Lubbock group for the period September 11, 1955, to March 4, 1956, averaged 37 cents above the basis price. From October 16 through December 24, however, the premium on seed was \$1.87 a ton. A gin by gin tabulation of premiums on seed weighted by volume also showed a season average of \$1.87. This increased the apparent margin on seed - \$5.21 a ton - by more than a third. Grades on seed in Texas in 1955-56 were generally on the high side, averaging 103.5 for the Lubbock area (appendix table 2).

Seed Grades Varied

Figure 2 indicates how seed grades varied during the season and further illustrates how discrepancies may result from a simple average of prices or premiums for a season. Premiums on seed sold early in the season were only slightly above basis 100 grade, rose sharply during the major ginning period, and then dropped substantially below basis grade for the remainder of the season. Excessive moisture is often one of the major factors in lowering the grade, particularly during early operations.

Gin prices followed basis quotations rather closely for the major part of the season but reflected only slightly, if any,

premiums or discounts received on seed. Basis mill quotations rose steadily upward toward the end of the season but only a small portion of the total seed was affected. Apparently mills sometimes raise their basis price near the end of the season to encourage gin patronage for the following year even though seed grades may have declined. Mills in some areas did not discount a sizeable part of the seed delivered that was below grade, paying the basis 100 grade price. This was done only on occasional shipments in the Lubbock area and was not extensive. Competition for seed probably is the principal reason for this practice.

Frequency tabulations of premiums and discounts on seed revealed a surprising amount of difference in the average grade of seed from gin to gin. Of the 69 gins in the study group, 55, or about 80 percent, had grade averages ranging from 102.0 to 105.5 and corresponding premiums from \$1 to \$3 a ton (appendix table 3). The number of gins at each of the frequency levels in this range were fairly well distributed. Also 9 gins had premiums less than \$1 and 4 had premiums of \$3 or more.

In addition to premiums on seed, gins in this area also effected an increase in their margin through gains made on the purchase weights of seed. All but 9 of the gins in the Lubbock group sold more seed by weight than they bought. The average gain per gin was 68 pounds per ton of purchases, or 19 pounds a bale. In dollars and cents the total gains per gin was around \$3,000 or \$1.28 a ton on sales. This, in effect, increased the actual or total margin on seed sales to \$8.36 a ton. The total margin, in bales, was \$3.16 a bale.

Apparently some gins tend to gain a little on seed purchases to offset seed weight losses from handling, transportation and moisture. The gain in purchase weights may appear small in

comparison to the 800 pounds or so of seed obtained from each bale ginned. It becomes significant, however, when multiplied by the total number of bales handled.

Gains or losses in purchase weights also differed considerably between gins. Differences of a few pounds in seed weights on each bale ginned resulted in substantial variations in total seed volumes. Two-thirds of the gins had gains up to 100 tons, and 6 of the gins had gains of over 200 tons. In contrast, 2 gins had losses in weight of more than 150 tons each. These data are equally significant in terms of pounds gained or lost on each ton of purchase weight (appendix tables 4 and 5).

Dollar adjustments on gin margins as a result of gains and losses in weight were in about the same frequency proportions as total tonnage data. Fifty-three gins had gains in weight effecting increases in the margin of up to \$3 with the largest number, 28, in the \$0.00 to \$0.99 class range (appendix table 6). It should be kept in mind that volume of ginning largely determines the relative importance of the total gain or loss in purchase weights of any particular gin. Some gins with large bale volumes also had sizable gains or losses in seed weights but, on a percentage basis (appendix table 7) the gains or losses were relatively small. This was true, conversely, for some gins with a small baleage.

The combined effect of high seed grades and a substantial gain in gin purchase weights resulted in an average margin on seed for the area of \$8.36 a ton. Seven gins had margins of less than \$6 a ton and 12 gins had margins of \$10 or more (appendix table 1). The balance, or 72 percent of the gins, had margins between these limits. In terms of dollars per bale, about half the gins had margins of \$3 to \$5 (appendix table 8).

Texas, Hamlin

The average gin margin on cottonseed in the Hamlin area was \$6.20. Grades on seed were good in 1955-56, averaging 102.0 for the season, and resulted in premiums of \$1.12 a ton. However, gins in this area lost an average of 31 pounds on each ton of seed handled and cost the ginner 77 cents a ton on sales.

* * * *

The area around Hamlin is largely rolling plains country and produces an important part of the cotton growing in Texas. In 1955-56, this region produced some 500,000 bales, with nearly one-fourth handled by the 37 gins making up the sample. Around 80 percent of the cotton was snapped in 1955 and nearly all the balance machine stripped.

Gins in the Hamlin area average considerably less in volume than in Lubbock. The average number of bales handled in 1955-56 was 3,300 per gin. Cottonseed sales averaged 1,227 tons against average purchases of 1,246 tons. Of the 37 gins, 28 had scales while the remaining gins estimated their purchase weights. The two most common methods used in arriving at estimated weights were the seed-lint ratio and percentage of cottonseed. There was considerable variation within these two categories.

The ginning season in the Hamlin area in 1955-56 was similar in many respects to Lubbock. The period of heavy delivery of seed to oil mills was somewhat longer with sizable deliveries beginning around the middle of September. The peak was reached the latter part of October and declined fairly rapid thereafter. Over 90 percent of the seed was delivered to the mills by the first week of December with less than 1 percent moving after January 1956.

Prices paid growers at the beginning of the season averaged between \$42 and

\$43 a ton but by the first of October were at \$45. Prices dropped about a dollar around the end of October, but \$45 was the buying price for most of the season (figure 3).

The gin price for cottonseed is generally based on the going quotation for basis 100 grade seed at nearby oil mills. Gins in the Hamlin area followed this general policy in 1955-56, but on a conservative level. The average spread between these prices for the season for gins was well over \$6. The weighted average, by volume, was \$5.85.

Quotations for basis grade seed at local mills rose steadily from around \$48 a ton in mid-September to over \$52 three months later. The average quotation for this period was \$50.40. Some mills paid as high as \$54 and \$55 a ton after the first of the year, often on the last few loads of seed from a gin. Seed at this time of the season was generally below 100 grade.

Grade on cottonseed was an important part of the gin margin, averaging 102.0 for the season. This reflected an average premium of \$1.12 a ton and increased the margin on seed from \$5.85 to \$6.97, or 19 percent.

Cottonseed grades averaged 100.0 or below the first few weeks. Around the first of October grades started to rise rapidly. The quality of seed going to mills was at its highest during November, bringing \$2 and more over basis price. Premiums on seed dropped to around 50 cents by the end of December.

The practice of mills of not discounting some loads of cottonseed graded below 100.0 appeared extensive during the 1955-56 season and affected a substantial portion of the total seed in this area.

By gins, 18 had an average premium for the season of less than \$1, 18 averaged \$1 to \$3 and one gin had an average premium of over \$3 for the year.

In contrast to the Lubbock area, gins around Hamlin had an average

weight loss of 19 tons of seed. Drought conditions in 1955 tended to reduce growers income in this area from cotton as well as seed. This may have had some bearing on the purchase weights. The Lubbock area is generally less affected by lack of sufficient rainfall due to more extensive use of irrigation.

The average loss in weight per gin when reduced to pounds amounted to 31 pounds for each ton of seed purchased or about 12 pounds per bale. Again this may appear negligible. With seed selling for 2.6 cents a pound, however, the ginner's total margin on seed was decreased 77 cents a ton, or to \$6.20 (table 2).

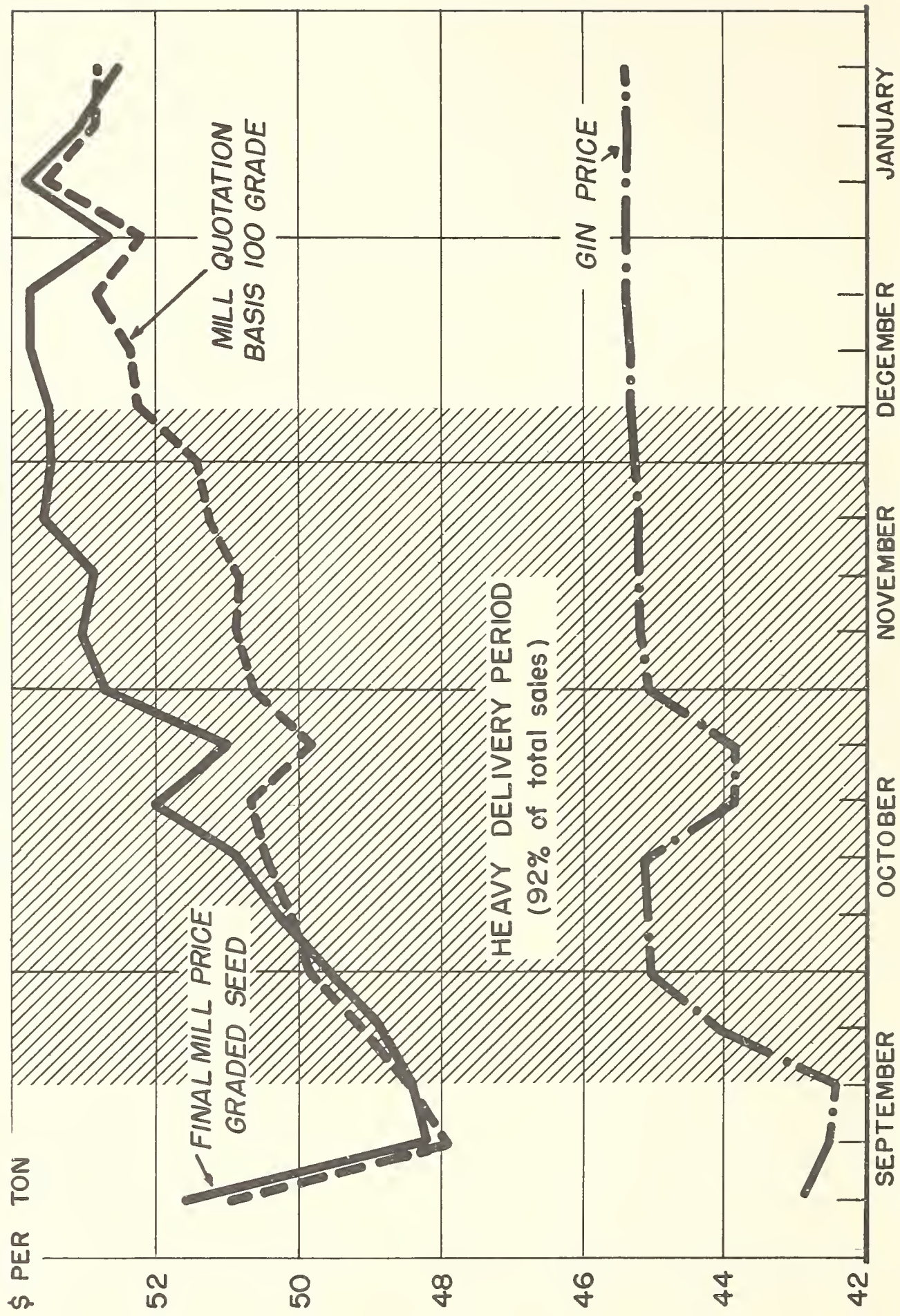
Losses or gains for each gin were sometimes much greater in volume than the average for the area. Twenty-two of the 37 gins lost weight between purchases and sales, with the average loss at 48 tons. Ten gins had losses ranging from 50 to 150 tons. Dollar losses were mostly from \$1 to \$3 a ton, with some gins losing over \$3 a ton. Losses in seed weight were generally greater for gins estimating seed weights than for gins with scales. The average gain in seed weight of the other gins was 23 tons, with 2 gins having increases of more than 50 tons. Dollar wise, gins with gains increased their margin on each ton by 90 cents.

The effect of both grading seed and differences in seed weights caused total margins in the area to vary from less than \$2 a ton to over \$11 a ton (appendix table 1). The most common margin was from \$7 to \$8. Ten gins had margins under \$5 a ton and 5 had margins of more than \$8.

Texas, Lower Rio Grande Valley

Gins in the Valley generally sell their seed to oil mills "as is" or on a non-graded basis. For this reason, the effect of large gains in seed weights of

Figure 3
Texas, Hamlin Area: Spread in Prices of Cottonseed Between Gins and Oil Mills,
by Weeks, 1955-56 Season



gins in this area, 85 pounds per ton of purchase weight, was especially noticeable. Gin margins on seed averaged \$7.03 a ton, nearly 40 percent more than would have been realized if seed weights had been determined more accurately.

* * * *

Production of cotton in the Lower Valley differs in many respects to other areas in Texas. Planted early in the year, cotton is harvested and ginned before the ginning season gets underway in the Lubbock or Hamlin areas. About 75 percent of the 1955 crop was hand picked and most of the rest was snapped.

Delivery of cottonseed to oil mills in 1955 was concentrated in a period of about 8 weeks. By August 20, 98 percent of the seed purchased by the 20 cooperative gins in the area had been sold to mills. Purchase weights were estimated by 13 of the gins, usually by the seed-lint ratio, or percent of seed cotton methods. Because practically all the seed in this area is sold to mills on non-graded basis, gains or losses in gin weights play a singular role in determining the real margin on seed.

Prices paid Valley growers for seed in 1955 were tied directly to oil mill prices. Ginners maintained a spread of \$5 between these prices during most of the season, changing their prices in accordance with those at the mill (figure 4). The relationship between the gin and the oil mill price is closer in this area than in others in the survey. This is partly because the practice of not grading seed at the mill eliminates the lag in final price setting which otherwise results.

Gin prices at the beginning of the season started at \$52 a ton, dropped to \$50 in mid-July and to \$48 a week later. The movement of seed to oil mills reached its peak at the latter price level, with nearly one-fourth of total deliveries for the season. Gin prices rose again to \$51 during the first part of August but dropped

down to \$45 by the end of the month.

The weighted average price paid growers for the season by gins was \$49.67. This compared to an average price received by gins of \$54.76, or an apparent margin on cottonseed of \$5.09 a ton.

The number of bales ginned by the cooperatives was 106,247, an average of 5,312 bales per gin. Total cottonseed purchases was 44,352 tons against total sales of 45,979 tons. Thus, gins in this group had an average gain of over 80 tons. When reduced to pounds, the gains per gin amounted to 85 pounds per ton on purchases, and about 30 pounds per bale. With sales bringing an average \$54.76 a ton, each gin, in effect, had \$4,500 more total dollar income on seed than it would if it had no gain. Instead of \$5.09 a ton, the average gin margin on seed was \$7.03 a ton, an increase of 38 percent (table 2).

Many Gins Estimate Weights

One of the principal reasons for the large differences between gin and mill weights is the high percentage of gins estimating purchase weights. Gins in some areas gain or lose more than others because of the relative accuracy of the specific methods of formulas employed in estimating. Similarly, scale weighing is only as accurate as the scales themselves and the degree of competence in their use.

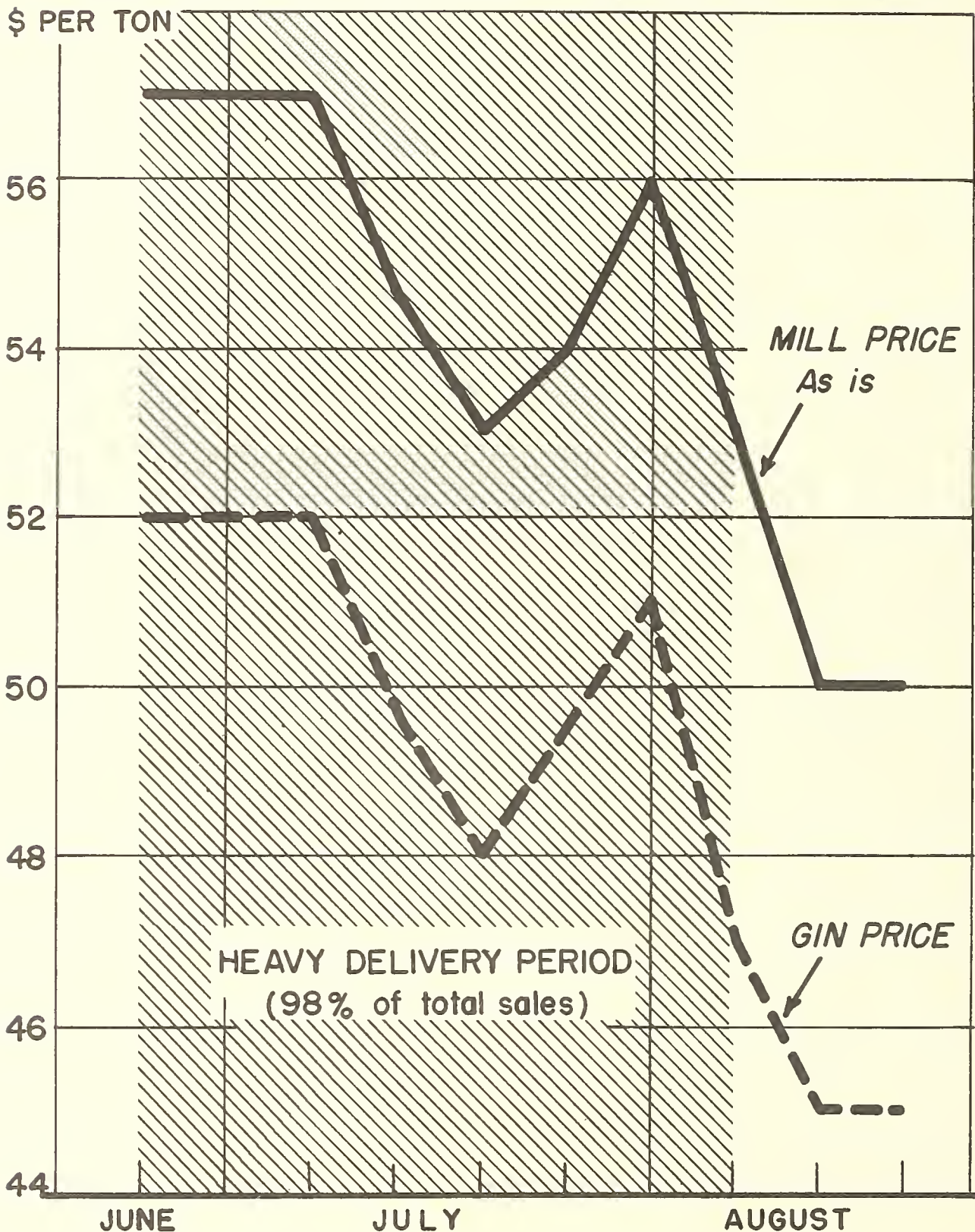
The 13 gins in the Valley area estimating purchase weights had an average difference between gin and mill weights of 108 tons, or 5.1 percent of purchases, against 40 tons, and 1.7 percent, for those gins with scales. While the average dollar gain a ton for all gins in the area was \$1.94, the 13 gins estimating weights had dollar adjustments to the apparent margin of \$2.63 a ton as compared to 79 cents for gins weighing their seed.

Gains or losses in seed volume of individual gins, irrespective of specific

Figure 4

Texas, Valley Area:

Spread in Prices of Cottonseed Between Gin and Oil Mills, by Weeks, 1955-56 Season



methods of obtaining purchase weights, ranged from a loss of less than 50 tons to a gain of over 200 tons. In pounds per ton of purchase weight, 4 gins had losses of less than 50 pounds, while the balance had gains in weight.

Dollar adjustments as a result of gains or losses in purchase weights increased the overall range of gin margins and altered considerably the frequencies within class intervals.

If gains and losses were disregarded, 6 gins would show apparent margins of from \$4 to \$5 a ton and 13 would have margins of from \$5 to \$6 a ton. Except for one gin, the difference between the lowest and the highest margin would be 25 cents. After adjustments, however, gin margins ranged from just under \$5 to nearly \$14 a ton. Ten gins had margins of from \$4 to \$6 a ton, 5 were from \$6 to \$8, and 5 gins had total margins of over \$8 (appendix table 1). Another measure of the variation between gin margins is that approximately two-thirds of the gins would not be expected to differ from the average of \$7.03 for the area by more than \$2.24.

On a per bale basis, nearly half the gin margins were between \$2 and \$2.50.

Oklahoma

Grades on seed generally were good in Oklahoma in 1955-56, averaging 103.5 for the 61 gins in this group. Some gins also received a special premium or allowance on part of their seed over and above prevailing mill prices. Thus premiums on seed averaged \$2.07 a ton. The average total margin on seed of \$7.84 a ton also included 47 cents a ton gain on seed weights.

* * * *

The 61 cooperative gins comprising the study group for this area are located mainly in the Southwest quarter of the State. This section produces about

three-fourths of Oklahoma's cotton. Growing conditions and harvesting methods are similar to the Hamlin, Tex., area, but yields run a little lower. In 1955, about 80 percent of the cotton was snapped. Oklahoma was the eleventh ranking State in cotton production in 1955. Production of cottonseed from the 1955 crop was estimated at 188,000 tons, with about one-third being handled by the cooperatives.

Gin volume characteristically is below that of the five other areas in the study. In 1955-56, gins averaged about 2,500 bales. Purchases of cottonseed per gin were 942 tons against average sales of 952. This indicated a gain in seedweight of about 10 tons, or less than 8 pounds per bale. All but three of the gins used seed scales to obtain purchase weights. Grades on seed were particularly good in 1955-56, averaging 103.5 for the area.

Nearly a third of the gins also received a special premium or allowance on some loads of seed over and above prevailing mill prices which was generally paid separately. This additional amount ranged roughly from \$2 to \$6 a ton, and the quantity involved varied from a few loads to a substantial part of a gin's total sales. The effect of this practice on the ginners' average margin for the season varied from a few cents to as much as \$2.50 a ton.

Most ginners contacted in this area indicated normal difference between the price paid growers and prevailing mill prices for seed was \$5 a ton. Weekly comparisons between gin prices and mill quotations for 100 grade seed during the 1955-56 season showed a spread closer to \$6. This was mainly the result of an increase of about \$2 a ton in mill quotations during the latter part of the season which was not passed on at the gin level. An average of prices weighted by tons, however, showed an apparent margin of \$5.30 a ton (table 2).

Seed started to move to oil mills about the second week in September but deliveries were not heavy until October. About 90 percent of the seed moved to mills between the first week in October and the last week in December. Prices paid growers during this period of heavy delivery averaged about \$44.80 a ton, basis mill prices about \$50.30 and final mill prices for graded seed, f.o.b. gin, about \$52.90 a ton (figure 5). Premiums on seed reached a high of \$4 a ton over mill quotations in November as grades averaged up to 108. Final mill prices were as high as \$55 and \$56 a ton during the latter part of December but declined thereafter.

An analysis of season average prices for each of the 61 gins in the study, weighted by tonnage, revealed a substantial difference in premiums on seed between gins. Eight gins had average premiums of less than \$1, 22 had premiums of \$1 to \$2, 22 had premiums of from \$2 to \$3, and 9 gins had premiums of over \$3 a ton. The average of premiums received by gins in the area was \$2.07 a ton.

Price Spread Fairly Uniform

In general, prices paid growers for seed in a given area do not differ greatly from gin to gin, as local mill quotations provide a common base for pricing. Consequently, the spread between gin and mill prices on basis grade seed is fairly uniform. It is partly for this reason that grades received on seed often play an extremely important part in determining the total margin a ginner receives. This is further emphasized in Oklahoma by the fact that ginning rates and charges for bagging and ties are set annually by the Oklahoma Corporation Commission. Ginning charges, however, have tended to become more standardized in other States while service and quality have become increasingly

important factors in area competition. As is the case for most services, ginning charges remain fairly constant from one season to another while prices for cotton and cottonseed, often change sharply.⁸

While gins had an average apparent margin, or spread between gin and basis mill quotations, of \$5.30 a ton, premiums on seed increased the average margin by \$2.07 or 39 percent. Grades alone can make a difference of several thousand dollars in a gin's total income on seed with no appreciable change in handling costs.

Gin margins in 1955-56 were increased another 47 cents a ton as a result of an average gain over purchase weights of about 10 tons per gin. About 70 percent of the gins had gains of less than 50 tons while 26 percent had losses. Nearly 80 percent of the gins had gains or losses of less than 50 pounds per ton of purchases.

Dollar adjustments to the margin, up or down, were made according to the quantity of weight gained or lost, respectively, of each gin. More than half the adjustments were in the class interval of \$0.00 to \$0.99 a ton, and most of the remaining plus adjustments were from \$1.00 to \$1.99 a ton. Sixteen gins had losses in seed weight and corresponding margins were adjusted downward, mainly by less than \$1 a ton.

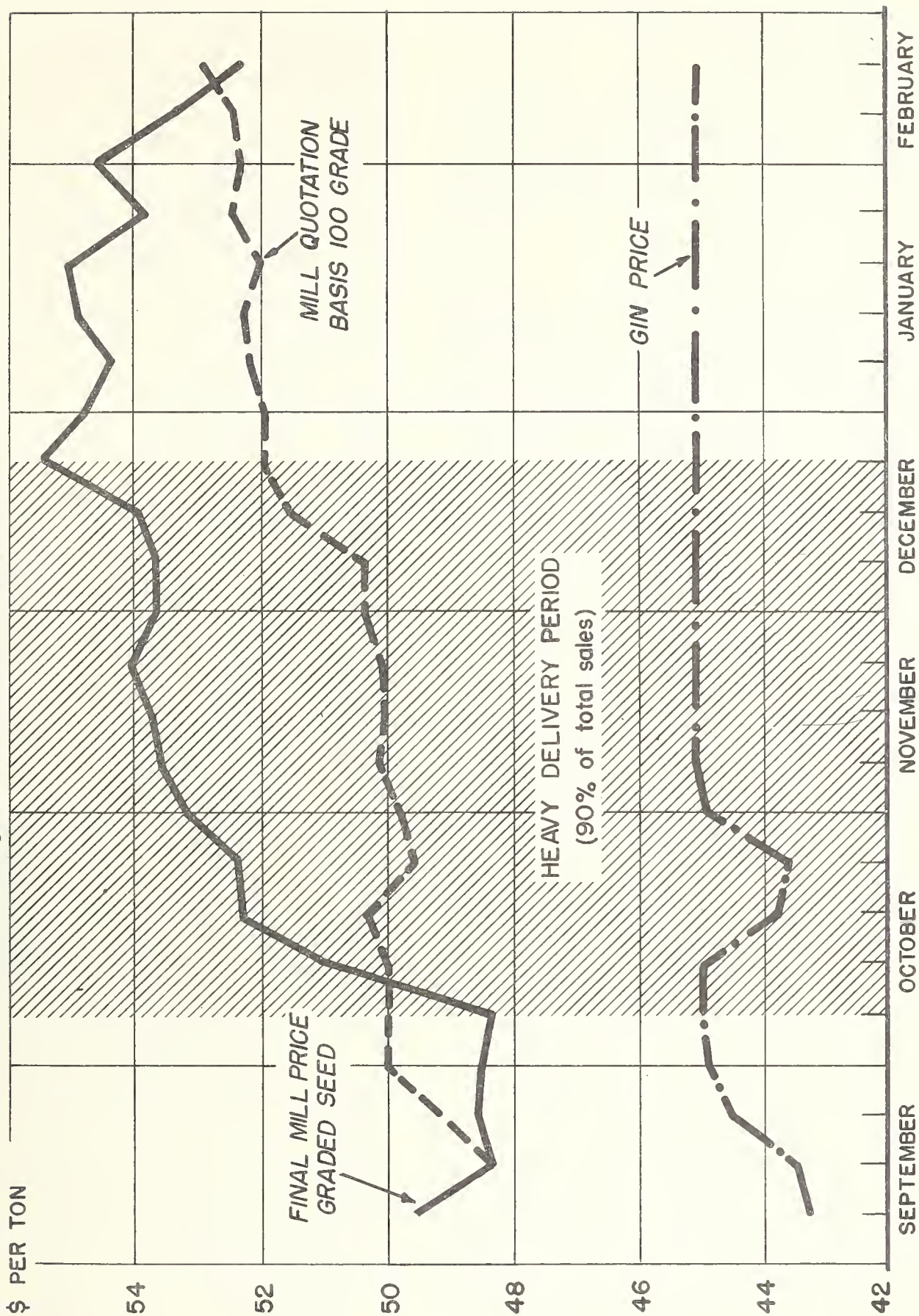
The actual or total gin margin on seed in 1955-56 averaged \$7.84 a ton. This is \$2.54 more per ton than indicated by the apparent margin. The spread between the gin price and local mill quotations is commonly accepted as the ginner's margin on seed. This fallacy, however, is based on the assumption that premiums and discounts on graded seed average out and that gains and losses in weight are negligible.

About two-thirds of the gins had total margins ranging from \$6 to \$9 a ton, a spread of \$3. The highest margin was

⁸Fortenberry, A. J. Charges for Ginning Cotton. Agr. Mar. Serv., U. S. Dept. of Agr. Mar. Res. Rpt. No. 120. June 1956.

Figure 5

Oklahoma Area: Spread in Prices of Cottonseed Between Gins and Oil Mills, by Weeks, 1955-56 Season



over \$12 a ton and the lowest less than \$4 (appendix table 1).

Frequencies of total margins in terms of dollars per bale show a similar grouping within class intervals of 50 cents. About 75 percent of the gins had margins between \$2 and \$3.50 a bale.

Arkansas

Grades on seed were especially important to gins in this area as the spread between buying and selling prices, from \$3 to \$4, was less than in other areas. Average grades of 102.5 enabled gins to pick up \$1.23 a ton on premiums. Gin margins averaged \$4.62 a ton as seed weights were 6 pounds per ton, or about 18 cents, less than purchases.

* * * *

Arkansas is second only to Mississippi in cotton production in the important Mississippi Delta region. Production of cottonseed has averaged about 10 percent of total United States output in recent years.

Official records of 1955-56 operations of cooperative gins, as in the other areas, provided the basic material for the study. Thirty gins, representing the sample, ginned a total of 105,000 bales of cotton. Cottonseed sales were 43,340 tons, or about 1,445 tons per gin. This was about 10 tons per gin less than purchases. Only 7 of the 30 cooperatives had seed scales, a smaller percentage than in any of the other areas, but about double the percentage for the State as a whole.

The most common method used to estimate seed weights at the gin, particularly for hand picked cotton was to subtract the bale weight plus an estimate for trash from the weight of the seed cotton. Various formulas were used to estimate the amount of trash according to the method of harvesting cotton. The seed-lint ratio method was

used by about a third of the gins to determine seed weights on machine picked and snapped cotton. About 60 percent of the 1955 cotton crop was hand picked, about 30 percent was machine picked and practically all of the balance snapped. On the average, around 1,500 pounds of seed cotton was ginned for every bale of lint.

Grades on seed were favorable during 1955-56, averaging about 102.5 per gin. This was especially important as gins operated on a smaller seed margin in Arkansas than in any of the other areas. The spread between the gin price and the price for 100 grade seed averaged \$3.57 a ton weighted basis, compared to well over \$5 a ton for Texas, Oklahoma and Alabama.

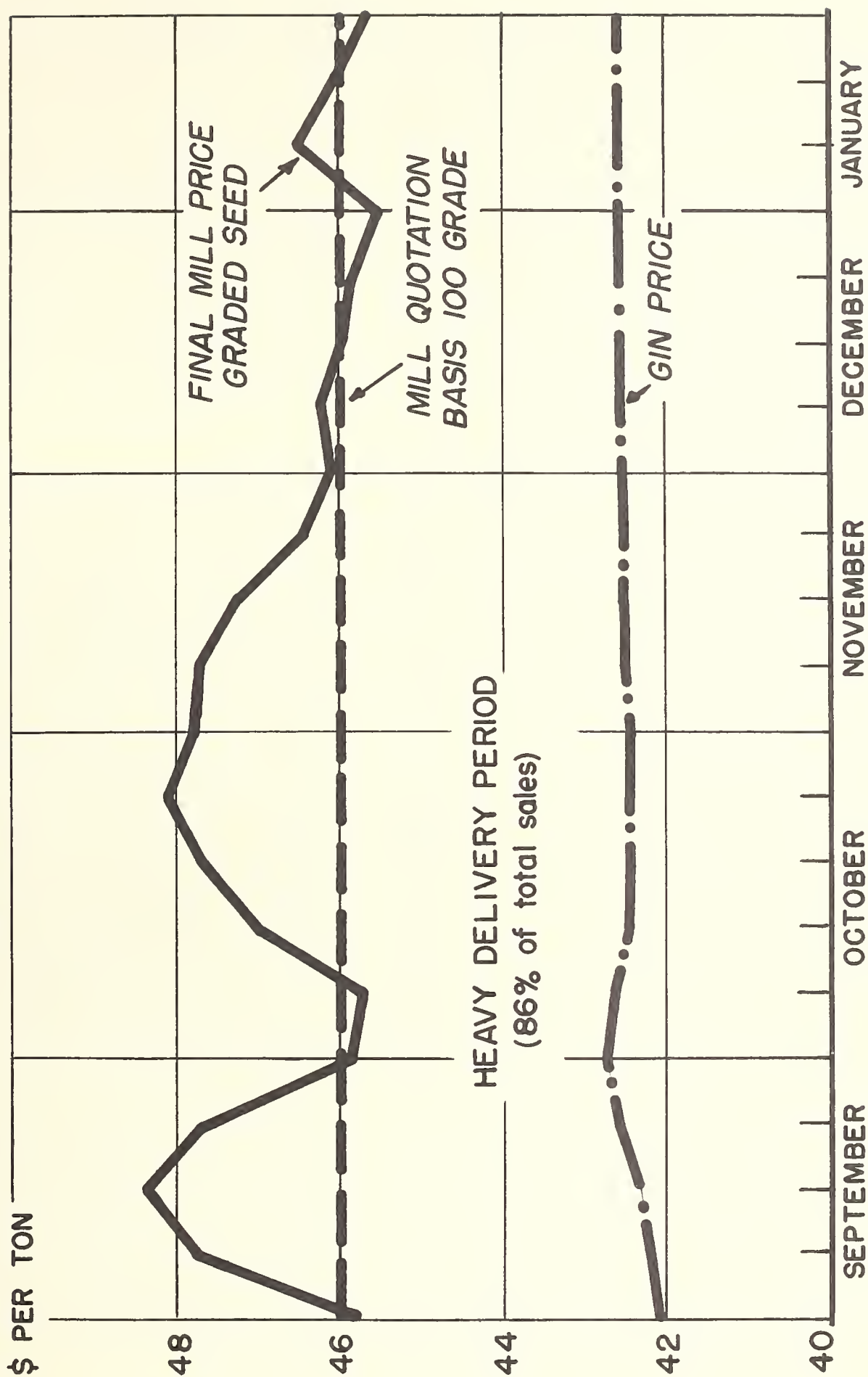
Prices paid growers averaged \$42.43 a ton while mill prices, f.o.b. gin for basis seed remained stable at \$46 a ton for the entire season (figure 6). Hence, grower prices fluctuated very little between gins. A weekly average of average gin prices showed a very gradual rise from around \$42 a ton to about \$42.60 during the season.

Low prices for cottonseed meal, due mainly to distance from principal consuming markets, adversely affected the price of cottonseed at all levels of the industry in the State. Premiums received on seed in 1955-56 averaged over \$2 a ton in mid-September, but dropped to discount levels during early October.

Grades were high during most of the period of heavy seed deliveries to mills. Approximately 86 percent of the seed moved to oil mills in about 12 weeks beginning around the second week in September. Gins received an average premium of \$1.23 a ton for the season, increasing the apparent margin on seed by about a third.

Differences in average grade on seed for the season between gins resulted in considerable fluctuations in average gin margins. With respect to grade

Figure 6
Arkansas Area: Spread in Prices of Cottonseed Between Gins and Oil Mills,
by Weeks, 1955-56 Season



frequencies, 8 gins were grouped at 104.0 to 104.5, the largest number in any one class interval. Only 2 gins had average season grades above 104.5 while 19 of the other 20 gins were spread fairly evenly in the classes ranging from 100.0 to 104.0.

Average season premiums on seed received by gins varied similarly to grades. Nine of the gins had season premiums averaging between \$1.50 to \$2 a ton above the average price for 100 grade seed. Four gins were over \$2 a ton. Two of the 17 remaining gins had low grades on seed resulting in a price discount for the season.

Gains and losses in seed weights between the gin and the mill further increased the differences in the margins between gins. The area averaged a loss of 9.5 tons per gin, but 17 of the gins had gains in weight for the season. The average loss per gin amounted to 6 pounds on each ton of seed purchased. This decreased the average margin on seed about 18 cents a ton, leaving a final or total margin of \$4.62 a ton (table 2).

Adjustments to the margin, plus or minus, due to changes in seed weights averaged \$1.13 a ton for gins estimating seed weights against 74 cents a ton for gins with scales.

Final or total margins also varied considerably between gins. Only 6 gins were in the same class interval of \$4 to \$4.99 a ton as the average margin for the area. However, approximately two-thirds of the gins did not differ from the average margin for the area of \$4.62 a ton by more than \$2.19, either way. Four gins had total margins of less than \$2 a ton and 5 gins had margins of \$7 or more a ton (appendix table 1).

The average total margin for gins in this area, in bale terms, was \$1.88 a bale. Four gins had margins of less than \$1 a bale, 11 had margins ranging from

\$1 to \$2, and 13 gin margins were from \$2 to \$3 a bale.

Alabama

The number of gins representing this area is small because of the limited number of cooperative gins in Alabama. Gin margins averaged \$8.46 a ton. Those gins selling seed on grade received an average premium of \$2.25 a ton. Margin adjustments resulting from an average loss in seed of 23 pounds on each ton of purchases cost the ginners 46 cents a ton.

* * * *

Alabama is a major cotton growing State in the Southeastern region of the cotton belt, averaging nearly 800,000 bales annually in the 5 years, 1953-57. The 1955 crop of over a million bales, mostly hand picked, was the largest during this period. Production of cottonseed from this crop is estimated at 413,000 tons.

The number of cooperative gins in Alabama is small compared to the other areas. The five gins which made up the sample in this area are located in various sections of the State. Four of the gins had seed scales, a considerably larger percentage than the average for the State. Two of the 5 gins sold their seed "as is" while sales of the other 3 gins were on a graded basis.

Prices paid growers for cottonseed averaged \$43.12 a ton for the season compared to mill quotations for basis grade or "as is" seed of \$50.69, a spread of \$7.57. The three gins selling seed on official grades had an average grade of 104, reflecting an average premium of \$2.25 a ton and an average margin of \$9.03 a ton. The average margin for the 5 gins was \$8.92 a ton before adjustments due to changes in seed weights between the gin and the mill.

Four of the 5 gins in the sample lost seed weight, almost exactly the same proportion as that indicated by a study made by the Agricultural Experiment Station of the Alabama Polytechnic Institute.⁹ The average total loss in weight per gin was about 11 tons, or 23 pounds per ton of purchases. Three of the losses were in the range of 0 to 49 tons. One gin had a gain in seed weight

of about 55 pounds per ton of purchases.

The amount of adjustment to the margin due to losses in seed weight averaged \$0.46 for the area, resulting in a final or total margin for the area of \$8.46 a ton. Margins varied sharply between gins, ranging from about \$4 a ton to over \$11 a ton. Two gins had total margins falling in the class interval of \$8 to \$9 (appendix table 1). In terms of dollars per bale, total margins ranged from about \$1.75 to about \$5.50 while the average for the area was \$3.31 a bale.

⁹Anderson, F. B. Factors Affecting Handling Costs of Cottonseed at Gins in Alabama. Ala. Polytechnic Inst. Agr. Expt. Sta. Bul. 292. p. 12. 1954.

Appendix table 1. - *Average gin margins per ton on cottonseed, and standard deviations¹ by specified areas, 1955-56 season*

Margin (Dollars per ton)	Texas, Lubbock	Texas, Hamlin	Texas, Valley	Oklahoma	Arkansas	Alabama	All areas
<i>Number of gins</i>							
<u>Class</u>							
Under \$2.00	0	2	0	0	4	0	6
2.00 - 2.99	1	1	0	0	3	0	5
3.00 - 3.99	2	3	0	1	5	0	11
4.00 - 4.99	1	4	3	0	6	1	15
5.00 - 5.99	3	7	7	6	5	0	28
6.00 - 6.99	11	5	1	14	2	1	34
7.00 - 7.99	16	10	4	13	4	0	47
8.00 - 8.99	15	3	2	14	0	2	36
9.00 - 9.99	8	1	2	7	1	0	19
10.00 - 10.99	7	0	0	5	0	0	12
11.00 and over	5	1	1	1	0	1	9
Total gins	69	37	20	61	30	5	222
<i>Per ton</i>							
Average	\$8.36	\$6.20	\$7.03	\$7.84	\$4.62	\$8.46	\$7.08
Standard deviation ¹	\$2.79	\$2.46	\$2.24	\$1.59	\$2.19	\$3.25	-

¹Indicates that margins of approximately two-thirds of the gins included in the study would not be expected to differ from the average by more than the standard deviation.

Appendix table 2. - *Average grades received by gins on cottonseed, by specified areas¹ 1955-56 season*

Grades	Texas, Lubbock	Texas, Hamlin	Oklahoma	Arkansas	Alabama	All areas
<i>Number of gins</i>						
<u>Class</u>						
Under 99.0	0	0	0	1	0	1
99.0 - 99.5	2	1	1	0	0	4
100.0 - 100.5	1	4	3	3	0	13
101.0 - 101.5	5	9	5	5	0	24
102.0 - 102.5	10	13	13	5	1	40
103.0 - 103.5	16	3	13	6	1	41
104.0 - 104.5	18	6	6	8	0	38
105.0 - 105.5	11	1	13	1	0	26
106.0 - 106.5	3	0	4	1	0	6
107.0 - 107.5	2	0	3	0	1	8
108.0 and over	1	0	0	0	0	1
Total gins	69	37	61	30	3	200
<i>Grade</i>						
Average	103.5	102.0	103.5	102.5	104.0	103.0

¹All seed handled by the Valley gins was sold to oil mills "as is" or on a nongrade basis.

Appendix table 3. - *Average premiums and (discounts) received per ton by gins on graded cottonseed, and standard deviations¹ by specified areas² 1955-56 season*

Premium or (discount) (Dollars per ton)	Texas, Lubbock	Texas, Hamlin	Oklahoma	Arkansas	Alabama	All areas
<i>Number of gins</i>						
<u>Class</u>						
(\$0.01) and over	2	1	2	2	0	7
0.00 - 0.49	1	4	2	4	0	13
0.50 - 0.99	6	13	4	5	0	28
1.00 - 1.49	13	11	7	6	1	38
1.50 - 1.99	16	3	15	9	1	44
2.00 - 2.49	17	4	11	2	0	34
2.50 - 2.99	10	0	11	1	0	22
3.00 - 3.49	2	1	4	1	0	8
3.50 - 3.99	1	0	3	0	1	5
4.00 and over	1	0	2	0	0	3
Total gins	69	37	61	30	3	200
<i>Per ton</i>						
Average	\$1.87	\$1.12	\$2.07	\$1.23	\$2.25	\$1.71
Standard deviation ¹	\$0.84	\$0.68	\$1.06	\$0.88	\$1.43	-

¹Indicates that average premiums on seed of approximately two-thirds of the gins included in the study would not be expected to differ from the average by more than the standard deviation.

²All seed handled by the Valley gins was sold to oil mills "as is" or on a nongrade basis.

Appendix table 4. - *Average gains and (losses) in tons from cottonseed purchase weights of gins, and standard deviations¹ by specified areas 1955-56 season*

Gain or (loss) (Tons)	Texas, Lubbock	Texas, Hamlin	Texas, Valley	Oklahoma	Arkansas	Alabama	All areas
<i>Number of gins</i>							
<u>Class</u>							
(150) and over	2	0	0	0	0	0	2
(100) - (149)	2	2	0	0	1	0	5
(50) - (99)	1	8	0	1	4	0	14
(1) - (49)	4	12	4	15	8	4	47
0 - 49	30	13	5	43	15	1	107
50 - 99	16	2	3	2	1	0	24
100 - 149	7	0	5	0	1	0	13
150 - 199	1	0	2	0	0	0	3
200 and over	6	0	1	0	0	0	7
Total gins	69	37	20	61	30	5	222
<i>Tons</i>							
Average	58.4	(19.5)	81.8	9.8	(9.5)	(10.7)	18.4
Standard deviation ¹	97.0	45.2	81.5	20.7	48.0	20.1	-

¹Indicates that gains and losses in seed weights of approximately two-third of the gins included in the study would not be expected to differ from the average by more than the standard deviation.

Appendix table 5. - *Average gains and losses in seed weights of gins in pounds per ton of purchase weight, and standard deviations¹ by specified areas, 1955-56 season*

Gain or (loss) (Pounds per ton)	Texas, Lubbock	Texas, Hamlin	Texas, Valley	Oklahoma	Arkansas	Alabama	All areas
<i>Number of gins</i>							
<u>Class</u>							
(250) and over	0	0	0	0	0	0	0
(200) - (249)	1	1	0	0	0	0	2
(150) - (199)	1	1	0	0	1	0	3
(100) - (149)	1	5	0	0	1	1	8
(50) - (99)	2	9	0	3	4	0	18
(1) - (49)	4	6	4	13	7	3	37
0 - 49	31	12	6	35	12	0	96
50 - 99	15	2	3	7	2	1	30
100 - 149	7	0	3	1	2	0	13
150 - 199	1	1	2	1	1	0	6
200 - 249	3	0	0	1	0	0	4
250 and over	3	0	2	0	0	0	5
Total gins	69	37	20	61	30	5	222
<i>Pounds per ton</i>							
Average	68	(31)	85	22	(6)	(23)	19
Standard deviation ¹	153	75	94	51	71	57	-

¹Indicates that gains and losses in seed weights of approximately two-thirds of the gins included in the study would not be expected to differ from the average by more than the standard deviation.

Appendix table 6. - *Average adjustments to gin margins on cottonseed resulting from gains and losses in gin purchase weights, and standard deviations¹ by specified areas, 1955-56 season*

Adjustment - plus or (minus)	Texas, Lubbock	Texas, Hamlin	Texas, Valley	Oklahoma	Arkansas	Alabama	All areas
<i>Number of gins</i>							
<u>Class</u>							
Over (\$3.00)	3	3	0	0	2	0	8
(2.00) - (2.99)	2	7	0	2	1	1	13
(1.00) - (1.99)	1	7	0	2	4	0	14
(0.01) - (0.99)	3	5	4	12	6	3	33
0.00 - 0.99	28	11	6	33	12	0	90
1.00 - 1.99	16	3	1	9	2	1	32
2.00 - 2.99	9	0	4	1	2	0	16
3.00 - 3.99	1	1	2	1	1	0	6
4.00 - 4.99	3	0	1	1	0	0	5
5.00 and over	3	0	2	0	0	0	5
Total gins	69	37	20	61	30	5	222
<i>Per ton</i>							
Average	\$1.28	(\$0.77)	\$1.94	\$0.47	(\$0.18)	(\$0.46)	\$0.38
Standard deviation ¹	\$2.61	\$1.76	\$2.03	\$1.09	\$1.50	\$1.23	-

¹Indicates that adjustments to margins of approximately two-thirds of the gins included in the study would not be expected to differ from the average by more than the standard deviation.

Appendix table 7. - *Average gains and losses in seed weights of gins as a percent of gin purchase weights and standard deviations,¹ by specified areas, 1955-56 season*

Gain or (loss) (Percent)	Texas, Lubbock	Texas, Hamlin	Texas, Valley	Oklahoma	Arkansas	Alabama	All areas
<i>Number of gins</i>							
<u>Class</u>							
(10.0) and over	1	1	0	0	0	0	2
(8.0) - (9.9)	0	0	0	0	1	0	1
(6.0) - (7.9)	2	3	0	0	1	1	7
(4.0) - (5.9)	2	7	0	1	3	0	13
(2.0) - (3.9)	1	7	0	4	3	0	15
(0.0) - (1.9)	3	4	4	11	5	3	30
0.0 - 1.9	24	9	5	30	12	0	80
2.0 - 3.9	16	5	2	9	1	1	34
4.0 - 5.9	7	0	4	3	3	0	17
6.0 - 7.9	7	1	1	2	0	0	11
8.0 - 9.9	0	0	2	0	1	0	3
10.0 and over	6	0	2	1	0	0	9
Total gins	69	37	20	61	30	5	222
<i>Percent</i>							
Average	3.4	(1.6)	4.3	1.1	(0.3)	(1.1)	1.0
Standard deviation ¹	7.6	3.8	4.7	2.6	3.6	2.9	-

¹Indicates that percent gains and losses in seed weights of approximately two-thirds of the gins included in the study would not be expected to differ from the average by more than the standard deviation.

Appendix table 8. - *Average gin margins per bale on cottonseed and standard deviations,¹ by specified areas, 1955-56 season*

Margins (Dollars per bale)	Texas, Lubbock	Texas, Hamlin	Texas, Valley	Oklahoma	Arkansas	Alabama	All areas
<i>Number of gins</i>							
<u>Class</u>							
Under \$1.00	1	3	0	0	4	0	8
1.00 - 1.49	3	4	0	1	7	0	15
1.50 - 1.99	1	7	0	3	4	1	16
2.00 - 2.49	12	6	9	13	8	1	49
2.50 - 2.99	15	9	2	16	5	0	47
3.00 - 3.49	23	6	4	17	1	1	52
3.50 - 3.99	6	1	2	6	0	1	16
4.00 - 4.49	4	0	1	4	1	0	10
4.50 - 4.99	1	0	1	0	0	0	2
5.00 and over	3	1	1	1	0	1	7
Total gins	69	37	20	61	30	5	222
<i>Per bale</i>							
Average	\$3.16	\$2.25	\$3.04	\$2.91	\$1.88	\$3.31	\$2.75
Standard deviations ¹	\$1.12	\$0.93	\$1.03	\$0.72	\$0.89	\$0.82	-

¹Indicates that margins of approximately two-thirds of the gins included in the study would not be expected to differ from the average by more than the standard deviation.

